

WHAT IS CLAIMED IS:

1. A process for adding to and removing from a stack of lidded microplates, a first microplate being an initial lowermost microplate in the stack supported at a first height by a pair of opposite, inwardly-directed, support features of a stacking/unstacking machine, each remaining microplate in said stack resting atop said lid of the microplate immediately below, the process comprising the steps of:

a) adding a second microplate to the stack as a new lowermost microplate by elevating said second microplate, with an elevator, from below the stack until its lid supports the first lowermost microplate, the support features being accommodated by a pair of opposite, inwardly-directed, recesses in said lid of the second microplate;

b) separating the support features to allow passage of said second microplate;

c) further elevating said second micro-plate until it reaches at least the first height;

d) inserting said support features beneath said second microplate and lowering said elevator so as to disengage said elevator from stack, leaving said stack supported by said support features and leaving said second microplate as currently lowermost in said stack;

e) repeating steps (a)-(d) with a third microplate in place of said second microplate and said second microplate in place of said first microplate.

2. The process of claim 1 further comprising the steps of:

- a) raising said elevator to engage said third microplate;
- b) further raising said elevator to disengage said stack from said support features;
- c) separating said support features;
- d) lowering said elevator;
- e) reinserting said support features so that they are accommodated by a pair of opposite, inwardly directed, recesses in said lid of said third microplate; and
- f) further lowering said elevator so that said support features engage said second microplate immediately

3. The process of claim 2 further comprising the steps of:

- a) introducing a pair of stop features to said pair of opposite, inwardly-directed, recesses of said lid of said third microplate so that at least a portion of said stop features are positioned directly over at least a portion of said third microplate; and
- b) raising said lid of the third microplate with said stop members preventing movement of microplate so as to permit separation of said lid of said third microplate from said third microplate.

4. The process of claim 3 wherein the step of raising said lid comprises introducing a pair of lifting features into a pair of opposite, inwardly-directed, recesses in said lid with at least a portion of said lifting features extending immediately below a portion of said lid.

5. The process of claim 3 wherein there are two said support features adjacent each side of said stack.